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DEPARTMENT OF THE ARMY **05410.TD**
CORPS OF ENGINEERS, **JAN 97**
TULSA DISTRICT **JSH**

TULSA DISTRICT GUIDE SPECIFICATION

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SECTION 05410

COLD-FORMED STEEL STRUCTURAL FRAMING

1 GENERAL

1.1 REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to in the text by basic designation only.

AMERICAN IRON AND STEEL INSTITUTE (AISI)

AISI SG-673	(1986; Addenda 1989; Errata Nov 30, 1990) Cold-Formed Steel Design Manual

AMERICAN SOCIETY FOR TESTING AND MATERIALS (ASTM)

ASTM A 653/653M	(1995) Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated(Galvannealed) by the Hot-Dip Process

AMERICAN WELDING SOCIETY (AWS)

AWS D1.3	(1989) Structural Welding Code-Sheet Steel

1.2 SUBMITTALS

Government approval is required for submittals with a "GA" designation; submittals having an "FIO" designation are for information only. The following shall be submitted in accordance with Section 01300 SUBMITTAL DESCRIPTIONS:

SD-04 Drawings

Cold formed members; [_____].

Shop drawings shall indicate member gauges, spacings, and sizes; shop and field assembly details including cut and fastenings; type and locations of welds, bolts, and fastening devices; and panel fabrication, with individual panel drawings for each condition including configuration, dimensions, materials, attachments, structural calculations, and panel locations.

SD-Certificates

Design calculations as necessary to indicate compliance with load-bearing requirements shall be submitted for the following:

Framing; [_____]. Studs; [_____]. Joists; [_____]. Runners; [_____].

1.3 DELIVERY AND STORAGE

Materials shall be delivered to the site in undamaged condition and stored off the ground in a well drained, ventilated, dry location; protected from damage; protected from rain or snow by impervious covering or shelter; properly supported on a level platform; and shall be easily accessible for inspection and handling. Handle materials carefully to prevent damage. Replace damaged items with new.

2 PRODUCTS

2.1 STEEL STUDS FOR EXTERIOR WALL FRAMING

Studs shall be formed from G60 galvanized steel sheets conforming to ASTM A 653/653M, Grade 50 (345) for 12, 14, and 16 gauges and Grade 33 (230) for 18 and 20 gauges. Studs shall be C-shaped, sized as shown on the drawings. Stud flanges shall be not less than 35 mm 1-3/8 inches wide, and each flange shall, in addition, have a stiffening lip bent parallel to the stud web.

2.2 CEILING AND FLOOR RUNNER CHANNELS, BRIDGING, AND ACCESSORIES

Formed from 20 gauge standard commercial G6O galvanized steel sheets with a minimum yield point of 230 MPa 33,000 psi. Track shall be C-shaped with web dimension to receive stud ends, and with flange dimension not less than 32 mm 1-1/4 inch.

2.3 FASTENERS

Screws shall be corrosion-resistant, self-tapping and self-drilling type, with pan head; size as recommended by steel framing manufacturer.

2.4 FABRICATION

Cold-formed steel structural framing shall be designed and fabricated to conform to AISI SG-673.

3 EXECUTION

3.1 ERECTION

3.1.1 Studs

Studs shall be seated squarely in the track with flanges abutting the track web, plumbed and aligned. Fasten studs to the top and bottom runner channels by welding or screwing both flanges to the runner channels. All studs shall be full wall height without splices. Jack studs shall be provided between track and sills, and between door and window headers and top track. Provide double studs at jambs of door and window openings and at control joints. Provide not less than three studs at corners. All welds shall be fillet, plug, butt, or seam. Install diagonal stud bracing between door and window headers and the top track. Stud spacing shall be as shown.

3.1.2 Floor Runner Channels

Channels shall be accurately aligned and securely attached in place. Attachment shall be by expansion shields and machine bolts, self-drilling anchors, or other approved methods with shear load capacity of 158.8 kg 360 pounds minimum. Space anchors 600 mm 24 inches on center maximum. Butt welds or splices shall be made at all butt joints in the channel.

3.1.3 Ceiling Runner Channels

Channels shall be fitted and attached to studs as specified for the floor runner channel attachment. Ceiling runner channels shall continue across control joints without splices.

3.1.4 Special Framing

Special framing shall be provided at corners, intersections, jambs of openings, and over door and window openings to distribute the structural loads imposed and to provide attachment surfaces for connecting materials.

3.1.5 Temprorary Bracing

Temporary bracing shall be provided until erection is completed.

3.1.6 Bridging

Bridging may be either C-shaped stud member cut to fit between stud webs, or continuous 38 mm 1-1/2 inch cold rolled channel inserted through stud web cut-outs. Attach bridging to each web by welding. Unless otherwise shown on the drawings, horizontal bridging shall be spaced not greater than 1525 mm 60 inches on center for wind loaded walls and 1016 mm 40 inches on center for axial loaded walls.

3.1.7 Diagonal Bracing

Provide diagonal bracing where required. Attach by welding to floor and ceiling runner channels and at each stud intersection.

3.1.8 Welding

Welding shall be in accordance with AWS D1.3. A wire feeder type welder may be used.

3.1.9 Steel Framing System

System shall be designed to carry the full design wind load with the maximum deflection limited to L/600. Framing Components shall be cut square or on an angle as in bracing to fit square against abutting members. Members shall be held firmly in position until properly fastened.

3.1.10 Web Stiffeners

Stiffeners shall be provided at concentrated load points and at end reactions whenever the web height/thickness ratio exceeds 200.

3.1.11 Panel Fabrication

Framing components may be prefabricated into panels prior to erection. Prefabricated panels shall be square and braced against racking. Lifting of prefabricated panels shall be done in a manner to avoid local distortion in any member.

3.1.12 Attachments

Attachments of similar components shall be done by welding. Dissimilar framing components shall be attached by welding, screen attachment or by bolting. Wire tying of framing components in structural applications will not be permitted. All welds shall be touched up with a zinc-rich paint.

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